08/214339

MOLD RUNNER REMOVAL FROM A SUBSTRATE-BASED PACKAGED ELECTRONIC DEVICE

Bruce J. Freyman
John Briar
Young Wook Heo
Il Kwon Shim

ABSTRACT

According to the invention, an electronic device mounted on a substrate is encapsulated using a standard two-piece mold. A novel degating region is formed on a surface of the substrate to allow removal of excess encapsulant formed on the surface during molding without damaging the remainder of the device. The material of the degating region that contacts the encapsulant forms a weak bond with the encapsulant, relative to the bond formed between the encapsulant and the substrate, so that the encapsulant can be peeled away from the degating region without damaging the substrate or other portion of the device. The degating region is provided without introducing additional steps into the process for forming the device. The presence of the degating region eliminates the necessity of using a three-piece or modified two-piece mold to achieve top gating in order to degate without damaging the device. In one embodiment, the degating region is made of gold. Gold has an adhesive force with typical encapsulant materials that is approximately 10% of the adhesive force between the typical encapsulant materials and typical substrate materials.